

PTO

Safety Pays

Extra care is required around power-take-off units.

Power-take-off drivelines are one of the most productive tools on the farm. But, when safety rules are ignored, or the PTO driveline is improperly maintained or operated, it can be very hazardous.

Most injuries with PTOs occur when a person's clothing or hair becomes entangled with a part of the spinning PTO system. Protruding components—the locking pin, bolt, cotter pin, grease fitting, universal joint, and tractor spline—readily hook and grab loose or dangling clothes or hair, especially if shields are damaged or missing. Boot laces, pant legs, scarves, the cuffs on sleeves of coats and shirts, and drawstrings on windbreakers and hooded sweatshirts can all easily become entangled.

Once clothing or hair is caught, the rotation speed of the PTO, combined with the power the tractor exerts, makes escape very unlikely and injury almost certain.

Incidents with a PTO can happen when a tractor is moving or stationary. Under normal conditions, disengage the PTO and shut off the tractor engine

tractor before leaving the operator's seat.

However, with some PTO-driven machines such as augers and silage blowers, the type of job requires keeping the PTO engaged when the tractor is stationary.

In these situations, the operator's physical and mental condition are critical. An operator should be very alert any time a PTO unit is engaged—especially when the operator is out of the seat.

Here are some key safety precautions:

- Make sure all protective shields are in place before operating a PTO driveline for any reason.
- When working around or operating an engaged PTO driveline, never attempt to step over the rotating PTO driveline, no matter how slowly it may be turning.
- Never operate controls from the rear of the tractor.
- Never wear loose, baggy clothing around PTO drivelines.
- Stay well clear of rotating PTO drivelines; treat them as hazard zones. As a good rule-of-thumb, a distance that's at least equal to your height between you and the PTO. ■

At a Progressive Farmer Farm Safety Day Camp in Lockhart, S.C., Charles Privette, Clemson University Extension farm safety specialist, shows students a faulty PTO guard that needs to be replaced. The camp was sponsored in part by AGCO. PHOTO: HENRY NUNNERY



The Typical PTO Driveline Can:

- Wrap up 424 feet of shoelace in one minute at 540 rpm or 785 feet of shoelace at 1,000 rpm.
- Wrap your arm or leg around the PTO shaft 9 times in one second at 540 PTO rpm or nearly 16 times in one second at 1,000 PTO rpm.
- Produce second-degree burns on

your skin even if you're lucky enough that the PTO strips only the cotton clothing from your body. Worse yet, nylon and other synthetic fabrics will cut into the skin and muscle tissue instead of rubbing across it.

- Grind away skin, muscles, and tendons, and break bones, starting in as

little as three-fourths of one second if you're caught by an unshielded PTO driveline.

- A very strong man can generate about $\frac{3}{4}$ hp; a tractor transmits nearly all engine horsepower to the PTO driveline: No contest between even a strong man and a PTO driveline.